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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/558,239	04/24/2000	Jiann H. Chen	80914ROL	8664

7590 03/12/2003

LAWRENCE P. KESSLER  
NEXPRESS SOLUTIONS LLC  
1447 ST. PAUL STREET  
ROCHESTER, NY 14653-7103

EXAMINER

ZACHARIA, RAMSEY E

ART UNIT	PAPER NUMBER
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1773

11

DATE MAILED: 03/12/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application N .

09/558,239

Applicant(s)

CHEN ET AL.

Examiner

Ramsey Zacharia

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 16 January 2003.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1,2 and 4-14 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,2 and 4-14 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                             | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____  |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)         | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____                                    |

**DETAILED ACTION*****Claim Rejections - 35 USC § 103***

1. Claims 1, 2, and 4-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chen et al. (U.S. Patent 5,595,823) in view of Chen et al. (U.S. Patent 5,582,917).

Chen et al. ('823) teach a fuser member comprising a core, a base cushion layer, and a layer overlying the base cushion (column 5, lines 43-45). The overlying layer comprises a cured random fluoropolymer and a particulate filler that comprises aluminum oxide (column 4, lines 50-67). Viton<sup>®</sup> A, a copolymer of 75% vinylidene fluoride and 25% hexafluoropropylene, is disclosed as a suitable fluoropolymer (column 6, line 66-column 7, line 4). The fluoropolymer is cured by means of a nucleophilic cure system comprising bisphenolic residues (column 6, lines 37-65).

In one embodiment, the particulate filler comprises 3 vol% MgO, 6 vol% Ca(OH)<sub>2</sub>, and 20-40 vol% aluminum oxide of the overlayer (column 6, lines 7-29). In this embodiment, 100 cc of material for the overlying layer would contain 3 cc MgO, 6 cc Ca(OH)<sub>2</sub>, 20-40 cc aluminum oxide, and 51-71 cc of fluoropolymer. The densities of these materials are as follows (from Aldrich Handbook and Cornell University Material Safety Data Sheet): MgO - 3.58 g/cc; Ca(OH)<sub>2</sub>, - 2.24 g/cc; 3.97 g/cc aluminum oxide; Viton<sup>®</sup> A - 1.82 g/cc (the average of the range 1.77-1.86). The lower limit of the disclosed range (i.e. 3 cc MgO, 6 cc Ca(OH)<sub>2</sub>, 20 cc aluminum oxide, and 71 cc of fluoropolymer) would be 10.74 g MgO, 13.44 g Ca(OH)<sub>2</sub>, 79.40 g aluminum oxide, and 129.22 g of fluoropolymer. This is a total mass of 232.80 g, which is: 8.3 parts by weight MgO, 10.4 parts by weight Ca(OH)<sub>2</sub>, and 61.4 parts by weight aluminum oxide

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per 100 parts by weight fluoropolymer. The upper limit of the disclosed range (i.e. 3 cc MgO, 6 cc  $\text{Ca}(\text{OH})_2$ , 40 cc aluminum oxide, and 51 cc of fluoropolymer) would be 10.74 g MgO, 13.44 g  $\text{Ca}(\text{OH})_2$ , 158.80 g aluminum oxide, and 92.82 g of fluoropolymer. This is a total mass of 275.80 g, which is: 11.6 parts by weight MgO, 14.5 parts by weight  $\text{Ca}(\text{OH})_2$ , and 171.1 parts by weight aluminum oxide per 100 parts by weight fluoropolymer. Therefore, in this embodiment, aluminum oxide has a concentration of about 61-171 parts by weight per 100 parts fluoropolymer, the MgO (i.e. an alkaline earth metal oxide) has a concentration of 8.3-11.6 parts by weight per 100 parts fluoropolymer, and  $\text{Ca}(\text{OH})_2$  (i.e. an alkaline earth metal hydroxide) has a concentration of 10.4-14.5 parts by weight per 100 parts by weight fluoropolymer. Furthermore, the combined amount of MgO and  $\text{Ca}(\text{OH})_2$  may be as little as about 5 vol% (see claim 9). If 9 vol% MgO plus  $\text{Ca}(\text{OH})_2$  results in a composition having 18.7-26.1 parts by weight per 100 parts fluoropolymer, it would be expected that a composition have about 5 vol% of MgO plus  $\text{Ca}(\text{OH})_2$  would result in a composition having about 10.4-14.5 parts per 100 parts fluoropolymer (i.e. a concentration  $5/9^{\text{th}}$  as great).

Chen et al. ('823) do not teach the incorporation of a siloxane polymer as claimed into the material of the overlying layer.

Chen et al. ('917) is directed to a fuser member comprising substrate, an intermediate layer, and a layer comprising an interpenetrating network of a fluorocarbon copolymer with a fluorocarbon curing agent and a poly( $\text{C}_{1-6}$  alkyl)siloxane polymer (column 2, lines 25-36). Viton<sup>®</sup> A is cited as a suitable fluorocarbon copolymer (column 4, lines 44-55 and Examples 1-4 and 7), and the fluorocarbon copolymer may further contain alumina (i.e. aluminum oxide) and acid acceptor metal oxides or hydroxides, such as magnesium oxide and calcium hydroxide. The

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poly(C<sub>1-6</sub> alkyl)siloxane is preferably a heat-curable silicone (column 5, lines 40-41). A preferred silicone comprises a polydimethylsiloxane having a number average molecular weight of between 20,000 and 30,000 and a polymethylsiloxane comprising monofunctional and tetrafunctional siloxane repeating units having a number average molecular weight of 1,000 to 10,000 (column 5, lines 56-65). An exemplary silicone is SFR-100 (used in the Examples of Chen et al. ('917) as well as the Examples of the instant application) which comprises a silanol- or trimethylsilyl- terminated polymethylsiloxane and is a liquid blend comprising 60-80 wt% of a difunctional polydimethylsiloxane having a number average molecular weight of about 150,000 and 20-40 wt% of a polytrimethylsilyl silicate resin having monofunctional and tetrafunctional repeating units in an average ratio of 0.8-1 to 1 and a number average molecular weight of about 2,200 (column 5, line 66-column 4, line 11). The addition of the poly(C<sub>1-6</sub> alkyl)siloxane polymer to the fluorocarbon copolymer composition yields a coating with advantageous release properties in addition to the mechanical and chemical properties of the fluorocarbon copolymer (column 3, lines 13-24).

One of ordinary skill in the art would be motivated to add a poly(C<sub>1-6</sub> alkyl)siloxane polymer to the composition of Chen et al. ('823) to yield a fuser member having advantageous release properties.

Therefore, the inventions of claims 1, 2, and 4-14 would have been obvious to one of ordinary skill in the art at the time the inventions were made.

***Response to Arguments***

2. Applicant's arguments filed 16 January 2003 have been fully considered but they are not persuasive.

As a result of the Terminal Disclaimer filed 16 January 2003, the non-statutory obviousness-type double patenting rejection has been withdrawn. However, a terminal disclaimer cannot be used to overcome a rejection under 35 U.S.C. 103(a). Therefore, the rejection under 35 U.S.C. 103(a) as being unpatentable over Chen et al. (U.S. Patent 5,595,823) in view of Chen et al. (U.S. Patent 5,582,917) has been maintained. Moreover, both Chen et al. references qualify as prior art under 35 U.S.C. 102(b), i.e. they were both published more than one year prior to the filing of instant application 09/558,239. Therefore, a showing under 35 U.S.C. 103(c) that the instant application and the prior art references were commonly owned at the time the invention was made would NOT be sufficient to overcome the rejection because 35 U.S.C. 103(c) can only be used to disqualify references that would only be prior art under 35 U.S.C. 102(e), (f), or (g). It may not be used to disqualify references that would be prior art under 35 U.S.C. 102(a) or (b). See MPEP § 706.02(l)(3).

***Conclusion***

3. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after

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the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ramsey Zacharia whose telephone number is (703) 305-0503. The examiner can normally be reached on Monday through Friday from 9 to 5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Thibodeau, can be reached on (703) 308-2367. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9310 for non after-final correspondences and (703) 872-9311 for after-final correspondences.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.



Ramsey Zacharia

Primary Examiner

Technology Center 1700

3/10/03